

D2
major top and bottom surfaces of said sheet material to relieve surface tension in said sheet material, said at least one score-line extending in a direction parallel to gas flow through said pollution control element, wherein said sheet material includes a first layer suitable for receiving strips of a second layer of sheet material, said strips of a second layer of sheet material attached to the first layer in an adjacent manner to provide said at least one score-line.

D3
28. (Twice Amended) A pollution control device comprising:

a housing;

a pollution control element disposed within the housing, said pollution control element having an oval shape, said oval shape defined by a first radius of curvature and a second radius of curvature, said second radius of curvature smaller than said first radius of curvature; and

a mounting article disposed between the pollution control element and the housing, said mounting article comprising a sheet material useful for mounting a pollution control element, said sheet material having major top and bottom surfaces, a thickness, a length and a width, said sheet material having at least one score-line proximate the second radius of curvature of the pollution control element, said at least one score-line extending in a direction parallel to gas flow through said pollution control element, said at least one score-line relieving surface tension in said sheet material.

REMARKS

Responsive to the outstanding Official Action, Applicants have carefully studied the references cited by the Examiner and the Examiner's comments relative thereto. Favorable reconsideration of the application, as amended, is respectfully requested.

Applicants have amended claims 13, 26 and 28. Claim 26 has been amended by placing the claim in independent form and the scope of the claim has not been narrowed. Claim 28 has also been amended in a manner which does not narrow the scope of the claim. Claims 12-20 and 23-28 are pending in the present application.

Rejections Under 35 U.S.C. §112

Claims 13-20 and 23-28 were rejected under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim subject matter which Applicants regard as the invention.

Applicants' Response to the Rejections Under 35 U.S.C. §112

Applicants have amended claim 13 to clarify that the at least two score-lines are found in one or both of the major surfaces of the sheet material. Claim 26 has been amended to place the claim in independent form and to clarify that strips of the second layer of sheet material are placed upon a first layer. Claim 28 has also been amended to clarify the present invention. The drawings and the language in the specification indicate that the score-line is placed in an area of the mounting article that is closely related to or proximate the smaller radius of curvature.

No new matter is added with the amended claims. Reconsideration of the amended claims is respectfully requested.

Rejection Under 35 U.S.C. §102 and §103

In the Office Action, claims 12-19, 23-25 and 27 were rejected under 35 U.S.C. § 102(b) as being anticipated, or in the alternative, under 35 U.S.C. §103 as obvious over JP 61-89916. The Examiner stated that the cited reference discloses a pollution control device and a method for making a pollution control device as claimed in the present invention. The Examiner stated that the cited reference discloses that the score lines are disposed across the longer direction of the sheet material which appears to be the direction of the gas flowing (referring to Fig. 2). Alternatively, the Examiner also averred that the direction of score-lines is an obvious choice for one skilled in the art.

Applicants' Response to the Rejection Under 35 U.S.C. §102 and §103

Applicants aver that the present invention is patentable over the JP 61-89916 reference. Applicants submit claim 12 for reconsideration by the Examiner. Applicants aver that the score-lines must be parallel to the gas flow upon placement of the mounting article around the pollution control element, as defined in claim 12, in order to achieve the advantageous surface tension relief. The alignment of the score-lines in this manner

permits the desired surface tension relief and prevention of undesirable cracking or breaking of the sheet material. The claimed alignment of the at least one score line is clearly indicted as preferred in the specification, for example at page 7, lines 2-3.

The reference cited by the Examiner discloses a mat with concaves in grooves to reduce compressive pressure on a pollution control element. Contrary to the Examiner's assertion, the grooves in the cited reference do not run parallel to the gas flow in the pollution control device. The cited reference clearly teaches in the second full paragraph on page 4 of the translation that the "continuous concaves 1a are formed on both sides of seal-mat 1 in the length direction of the material." It is further indicated, in the third full paragraph on page 3 of the translation, that "the above-mentioned material is wrapped around more than half of the side member of the honeycomb catalyzer in the length direction and mounted in a case (Fig. 2)..." Thus, the continuous concaves 1a run circumferentially about the honeycomb catalyzer, which is perpendicular to the gas flow.

The JP 61-89916 reference fails to teach, suggest or claim the use of score-lines extending in a direction parallel to the flow of gas through a pollution control element to relieve surface tension in the sheet material. The JP 61-89916 reference also fails to provide any teaching or suggestion that would have motivated the person of ordinary skill in the art to form the continuous concaves 1a in a direction parallel to the flow of gas. The Examiner fails to provide any source for such a motivation. As the Examiner knows, the test for obviousness is not an "obvious to try" test. Accordingly, it is respectfully submitted that the JP 61-89916 reference does not render the amended claims of the present invention unpatentable.

Rejection Under 35 U.S.C. §103

In the Office Action, claims 16, 19-20 and 23 were rejected under 35 U.S.C. §103 as obvious over JP 61-89916, as applied previously, in view of JP 2-61313.

Applicants' Response to the Rejection Under 35 U.S.C. §103

Applicants aver that the present invention is patentable over the references cited by the Examiner. For the reasons discussed above, independent claim 12 is patentably distinct from the cited references. Thus, claims 16, 19-20 and 23 have also been distinguished from the combination of references in the previous remarks. The references,

either individually or in combination, fail to teach, suggest, or disclose the use of a score-line in a direction parallel to the flow of the gas stream to provide tension relief in a mounting article for a pollution control device. Withdrawal of the rejection is therefore respectfully requested.

Rejection Under 35 U.S.C. §103

In the Office Action, claim 28 was rejected under 35 U.S.C. §103 as being unpatentable over JP 2-61313 in view of JP 61-89916 and in view of Corn (5,332,609). The Examiner averred that Corn discloses the oval shape for the pollution control element, and that it would have been obvious to select an appropriate shape for the pollution control element.

Applicants' Response to the Rejection Under 35 U.S.C. §103

Applicants aver that the present invention is patentable over JP 2-613 13 in view of JP 61-89916 and in view of Corn (5,332,609). Claim 28 defines the pollution control device wherein the sheet material has at least one score-line extending in a direction parallel to gas flow through said pollution control element. Further, claim 28 defines the at least one score-line as being proximate the second, smaller radius of curvature of the pollution control element. Corn discloses a two-layer mounting mat that is devoid of any score-lines, let alone any score-line proximate the second, smaller radius of curvature of the pollution control element.

The references, either individually or in combination, fail to teach, suggest, or disclose the use of a score-line in a direction parallel to the flow of the gas stream to provide tension relief in a mounting article for a pollution control device. The references also fails to teach or suggest the use of score-lines to relieve surface tension, wherein the score-lines are located in an area of the mounting article that is proximate the smaller radius of curvature of an oval shaped pollution control element. Withdrawal of the rejection is therefore respectfully requested.

Rejection Under 35 U.S.C. §103

In the Office Action, claims 12-20, 23-25 and 27 were rejected under 35 U.S.C. §103 as obvious over JP 2-61313 in view of JP 61-89916.

Applicants' Response to the Rejection Under 35 U.S.C. §103

Applicants aver that the present invention is patentable over the references cited by the Examiner. These claims have been distinguished over the combination of references in the previous remarks. The references, either individually or in combination, fail to teach, suggest, or disclose the use of a score-line in a direction parallel to the flow of the gas stream to provide tension relief in a mounting article for a pollution control device. Withdrawal of the rejection is therefore respectfully requested.

Subject Matter Indicated As Allowable

In the Office Action, the Examiner indicated that claim 26 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, and to include all of the limitations of the base claim and any intervening claim. As noted above, Claim 26 has been amended by placing the claim in independent form and to more distinctly claim the invention. Claim 26 is therefore in condition for allowance.

Conclusion

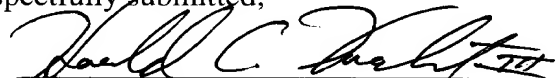
In view of the foregoing amendments and remarks, favorable reconsideration of the present application and the passing of this case to issue with all claims allowed is courteously solicited.

Should the Examiner wish to discuss any aspect of this application, Applicants' attorney suggests a telephone interview in order to expedite the prosecution of the application.

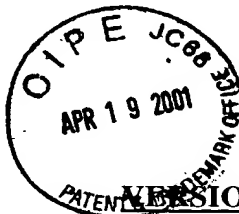
Registration Number 35,576	Telephone Number 651-575-1056
Date 4/16/01	

Respectfully submitted,

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Claims 13, 26 and 28 have been amended as follows:

13. (Amended) The pollution control device of claim 12 wherein the major surfaces of said sheet material has have a total of at least two score-lines ~~in a surface of the sheet material.~~

26. (Twice amended) ~~The~~ A pollution control device ~~of claim 12~~ comprising:
a housing;
a pollution control element disposed within the housing; and
a mounting article disposed between the pollution control element and the housing, said mounting article comprising a sheet material useful for mounting a pollution control element, said sheet material having major top and bottom surfaces, a thickness, a length and a width, said sheet material having at least one score-line in at least one of the major top and bottom surfaces of said sheet material to relieve surface tension in said sheet material, said at least one score-line extending in a direction parallel to gas flow through said pollution control element, wherein said sheet material includes a surface first layer suitable for receiving strips of a second layer of sheet material, said strips of a second layer of sheet material attached to the surface first layer in an adjacent manner to provide said at least one score-line.

28. (Twice Amended) A pollution control device comprising:
a housing;
a pollution control element disposed within the housing, said pollution control element having an oval shape, said oval shape defined by a first radius of curvature and a second radius of curvature, said second radius of curvature smaller than said first radius of curvature; and
a mounting article disposed between the pollution control element and the housing, said mounting article comprising a sheet material useful for mounting a pollution control element, said sheet material having major top and bottom surfaces, a thickness, a length and a width, said sheet material having at least one score-line ~~which corresponds to~~

proximate the second radius of curvature of the pollution control element, said at least one score-line extending in a direction parallel to gas flow through said pollution control element, said at least one score-line relieving surface tension in said sheet material.